

Experiment Number: K93025B
Route: Whole Body Inhalation
Species/Strain: Mouse/B6C3F1

Toxicokinetics Data Summary
Compound: Tetralin/ **Analyte:** Tetralin
CAS Number: 119-64-2

Request Date: 7/11/2023
Request Time: 10:03:16
Lab: Battelle Northwest

Male

Treatment Group (ppm)

15 Inhalation Plasma^a

60 Inhalation Plasma^a

120 Inhalation Plasma^a

| | | | |
|---------------------------------------|-----------------|----------------|------------------|
| C ₀ min_pred (ug/mL) | 0.423 ± 0.16 | 2.26 ± 0.52 | 6.56 ± 0.70 |
| Alpha (minute ⁻¹) | 0.117 ± 0.098 | 0.0730 ± 0.052 | 0.0421 ± 0.011 |
| Alpha Half-life (minute) | 5.92 ± 4.9 | 9.49 ± 6.7 | 16.5 ± 4.4 |
| Beta (minute ⁻¹) | 0.0140 ± 0.0094 | 0.0121 ± 0.011 | 0.00801 ± 0.0062 |
| Beta Half-life (minute) | 49.5 ± 33 | 57.2 ± 50 | 86.6 ± 67 |
| AUCinf_pred (ug*min*g ⁻¹) | 10.7 ± 1.6 | 72.6 ± 14 | 234 ± 20 |

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| | | | |
|---------------------------------------|-----------------|-----------------|-----------------|
| C ₀ min_pred (ug/mL) | 0.242 ± 0.085 | 1.93 ± 0.38 | 15.3 ± 22 |
| Alpha (minute ⁻¹) | 0.0906 ± 0.055 | 0.0639 ± 0.041 | 0.393 ± 0.53 |
| Alpha Half-life (minute) | 7.65 ± 4.6 | 10.8 ± 7.0 | 1.76 ± 2.4 |
| Beta (minute ⁻¹) | 0.00437 ± 0.016 | 0.0131 ± 0.0061 | 0.0170 ± 0.0046 |
| Beta Half-life (minute) | 159 ± 560 | 53.0 ± 25 | 40.8 ± 11 |
| AUCinf_pred (ug*min*g ⁻¹) | 7.46 ± 9.1 | 67.9 ± 7.5 | 293 ± 66 |

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LEGEND

MODELING SOFTWARE
SAS PROC NUN

MODELING METHOD & BEST FIT MODEL

^a The nonlinear least-squares fitting program used is SAS PROC NUN (SAS Institute Inc., Cary, NC)., bi-exponential elimination model-The data were weighted by $1/(\text{mean blood Tetralin concentration})^2$ when fitting.

ANALYTE
Tetralin

TK PARAMETERS (NOTE: (All parameters use Confidence Interval instead of SD or SEM)

C_0min_pred = Fitted plasma concentration at time zero (IV only)

Alpha = Hybrid rate constant of the alpha phase

Alpha Half-life = Half-life for the alpha phase

Beta = Hybrid rate constant of the beta phase

Beta Half-Life = Half-life for the beta phase

AUCinf_pred = Area under the plasma concentration versus time curve, AUC, extrapolated to time equals infinity

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TK PARAMETERS PROTOCOL

ANALYSIS METHOD

Toxicokinetic parameters were determined by fitting the Equation $C(t) = Aoe^{(-\alpha \cdot t)} + Boe^{(-\beta \cdot t)}$ to the data using a nonlinear least-squares fitting program where $C(t)$ is the blood concentration of Tetralin at any postexposure time (t), α and β are the hybrid rate constants (min^{-1}) obtained from the fit and Ao and Bo are the intercepts on the ordinate (concentration) axis of the extrapolated initial and terminal phases, respectively. Estimates for the toxicokinetic values, with their approximate 95% confidence intervals, were obtained directly from the model. The elimination half-lives for the initial and terminal phases of the concentration versus time profiles were calculated as $\ln 2/\alpha$ or $\ln 2/\beta$, respectively. The maximum blood concentration (Co) was assumed to occur at t equals 0 and was calculated as $Ao + Bo$. The area under the curve (AUC) was estimated using the trapezoidal rule from the first to the last time point (AUC_t). The AUC extrapolated to infinity (AUC_{inf}) was estimated using the equation $AUC_{inf} = AUC_t + C_f / \beta$ where C_f is the concentration ug Tetralin/g blood measure at the final time point and β is the rate constant for the terminal elimination phase.

TK_WHOLE BODY INHALATION PLASMA

15 ppm Male

Blood was sampled at less than 5, and 10, 20, 40, 60, 90, 120, and 180 minutes postexposure. Each animal was bled twice, once from each eye. The GC/MS method incorporating selected ion monitoring validated range was 0.00578 to 12.1 ug Tetralin/g blood. The limit of detection (LOD), limit of quantitation (LOQ), and experimental limit of quantitation (ELOQ) were 0.00059, 0.002, and 0.0058 ug Tetralin/g blood, respectively.

15 ppm Female

Due to deaths, the last sample collection point for the 15 ppm exposure group was eliminated, and one mouse (308) was bled a third time to fill a 120 minute time point. Each animal was bled twice once from each eye. The GC/MS method incorporating selected ion monitoring validated range was 0.00578 to 12.1 ug Tetralin/g blood. The limit of detection (LOD), limit of quantitation (LOQ), and experimental limit of quantitation (ELOQ) were 0.00059, 0.002, and 0.0058 ug Tetralin/g blood, respectively.

60 ppm, 120 ppm Male and Female

Blood was samples at less than 5, 20, 40, 60, 120, 240, 360, and 480 minutes postexposure. Each animal was bled twice, once from each eye. The GC/MS method incorporating selected ion monitoring validated range was 0.00578 to 12.1 ug Tetralin/g blood. The limit of detection (LOD), limit of quantitation (LOQ), and experimental limit of quantitation (ELOQ) were 0.00059, 0.002, and 0.0058 ug Tetralin/g blood, respectively.